Data Release Statement
GRID3 Angola Settlement Extents Version 01 Alpha
April 2020

Abstract

This document outlines the data sets used to construct a spatial database with settlement extents in Angola. Limitations and use constraints are provided.

Data Set Citation

Center for International Earth Science Information Network (CIESIN), Columbia University and Novel-T. 2020. GRID3 Angola Settlement Extents Version 01, Alpha. Palisades, NY: Geo-Referenced Infrastructure and Demographic Data for Development (GRID3). Source of building Footprints "Ecopia Vector Maps Powered by Maxar Satellite Imagery"© 2020. DOI: https://doi.org/10.7916/d8-pc2y-f224. Accessed DAY MONTH YEAR

Data Use Constraints

Users are free to use, copy, distribute, transmit, and adapt the work for commercial and non-commercial purposes, without restriction, as long as clear attribution of the source is provided.

Contacts and Data Queries

GRID3 and Novel-T appreciates feedback regarding this data set, such as suggestions, discovery of errors, difficulties in using the data, and format preferences.

Please contact: Geo-Referenced Infrastructure and Demographic Data for Development (GRID3) Email: data.queries@grid3.org or
Novel-T Email: info@novel-t.ch

GRID3
GEO-REFERENCED INFRASTRUCTURE AND DEMOGRAPHIC DATA FOR DEVELOPMENT

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1. Introduction

This document describes the steps followed to produce the Angola Settlement Extents Version 01 database, which constitute a comprehensive set of settlement polygons nationwide. This work has been undertaken as part of the Geo-referenced Infrastructure and Demographic Data for Development (GRID3) initiative in Angola and by Novel-T for the Global Polio Eradication Initiative (GPEI). The initiative is funded by the Bill & Melinda Gates Foundation and the United Kingdom's Department for International Development. It is implemented by WorldPop/Flowminder and the United Nations Population Fund, and the Center for International Earth Science Information Network (CIESIN) at Columbia University.

2. Input Data

The settlement extents are a derived data set utilizing the Digitize Africa building footprints to create the GRID3 Angola settlement extents database.

2.1 Digitize Africa Building Footprints

The building footprint layer was from the "Ecopia Landbase Africa powered by Maxar", website - "DigitizeAfrica.ai". The data was produced by Ecopia Tech Corporation, and Maxar Technologies, Inc. The layer covers the country of Angola.

3. Dataset Descriptions

The data are in geodatabase format and consist of three feature classes for built up areas (BUA), small settlement areas (SSA), and hamlets (hamlets).

Extent: Angola: Admin Level 0 Boundaries. The overall extent of the layer is limited to the overall extent of the building footprint data set and may not reflect the extent of official administrative boundaries.

Coordinate system: GCS WGS 1984

The settlement extents and classification are derived solely from the building footprints, and no ancillary datasets are used. The centerpoints of building footprint features are converted to a 3 arc-second raster grid of building densities, referred to throughout this document as building densities. Shell-up contours are then generated using the building density grid to delineate settled vs non-settled areas. The shell-up method includes contours that start at the lower bounds, but includes all grid cells with building densities to the upper bounds of the grid. For example, a shell up contour of 10 would include all grid cells with a building density of 10 or more.

Contours with a building density of one or more are used to create the settlement extent polygons. The GRID3 Angola settlement extents characterised building density into three (3) classes: built-up areas (bua_extents), small settlement areas (ssa_extents), and hamlets (hamlet_extents) (Inuwa,2014). These three classes of settlement agglomerations are presented below:

Built-up areas (BUAs)
A built-up area (BUA) is generally an area of urbanisation with moderately-to-densely-spaced buildings and a visible grid of streets and blocks. Built up areas are characterized by contours with an area greater than or equal to 400,000 meters square that maintains a building density of thirteen or more across the entire area.

Small Settlements (SSAs)
A small settlement (SSA) is a settled area of permanently inhabited structures and compounds of roughly a few hundred to a few thousand inhabitants. The housing pattern in SSAs is an assemblage of family compounds adjoining other similar habitations. Small settlement areas are characterized by having 50 or more buildings and are not a BUA.

Hamlet (HAMLET)
A hamlet is a collection of several compounds or sleeping houses in isolation from small settlements or urban areas. Hamlets are characterized as a collection of low-density settlements between one and 50 buildings and falls within 65 meters of one another.

The Geodatabase contains the following fields:

OBJECTID	ArcGIS Unique ID for each row
SHAPE	Geometry type
mgrs_code	Unique name generated using the Military Grid Reference System
type	The settlement type as defined by a BUA, SSA, or hamlet
Shape_Length	The shape length in geographic coordinates
Shape_Area	The shape area in geographic coordinates
GlobalID	Universal unique identifier

4. Known data limitations and disclaimer

The GRID3 settlement extents have not been visually inspected for false negatives. A settlement may exist for a location where there is no polygon. This may lead to settlements not being identified. Likewise, the GRID3 settlement extents have not been visually inspected for false positives. A settlement polygon may have been falsely identified as an actual settlement.

These data are part of ongoing work and is not guaranteed to be accurate and clean. If users encounter apparent errors or misstatements in the data, they should contact GRID3 at data.queries@grid3.org.

CIESIN, Columbia University, and their sponsors offer these data on a "where is, as is" basis; do not offer an express or implied warranty of any kind; do not guarantee the quality, applicability, accuracy, reliability or completeness of any data provided; and shall not be liable for incidental, consequential, or special damages arising out of the use of any data that they offer.

5. Acknowledgments

Funding for the development and dissemination of this data set was provided by the Bill & Melinda Gates Foundation and the United Kingdom Department for International Development.

6. References

Barau, I., et al. 2014. Improving Polio Vaccination Coverage in Nigeria Through the Use of Geographic Information System Technology. The Journal of Infectious Diseases 210(suppl_1): S102-S110, https://doi.org/10.1093/infdis/jiu010

Maxar Technologies, Inc. and Ecopia Tech Corporation. 2020. Ecopia Landbase Africa powered by Maxar, website - "DigitizeAfrica.ai".